

HOONAH SOUND HERRING SPAWN-ON-KELP POUND FISHERY

2000 MANAGEMENT PLAN



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Regional Information Report¹ No. 1J00-06

Alaska Department of Fish and Game
Division of Commercial Fisheries
Juneau, Alaska

January 2000

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INTRODUCTION

This plan provides an overview of the management approach, permit requirements, and regulations for the 2000 Hoonah Sound spawn-on-kelp pound fishery.

A closed pound fishery involves releasing sexually mature herring into a net impoundment in which kelp is suspended. The herring are released from the pound after they spawn on the kelp, and the kelp with eggs are then sold. **An open-pound fishery** involves suspending kelp from a floating frame structure in an area where herring are spawning. The herring are not impounded by a net but instead are allowed to naturally spawn on the suspended kelp. The kelp with eggs are removed from the water then sold. Both types of fisheries have in common the type of product produced, which is spawn-on-kelp.

During the 1999 season a total of 106 department permits were issued, 96 pounds were accounted for on the grounds and 86 pound operators made landings. The harvest totaled 71.6 tons of spawn-on-kelp product valued at about \$1,005,000. The amount of total production in 1999 fishery was 32% less than the previous year, however, the average production for each permit holder was up 12% from 1998. The average price increased somewhat from \$6.75/lb in 1998 to \$7.02/lb in 1999, thus the average income from the 1999 fishery was higher to around \$11,700 per fisher (Table 1). Increased production in the fishery since 1997 is related to a regulatory change allowing the harvest objective for the fishery to be set based on the forecast herring abundance rather than at a set level of 11-12 tons as was the case from 1990 to 1995. Hoonah Sound herring stocks have been at historically high levels since 1997.

Historical herring spawning and stock performance information for Hoonah Sound is shown in Table 2 and Figure 1. In 1999, approximately 13.8 nautical miles of spawn was observed between April 27-May 2. The spawning biomass estimate derived from dive surveys was 4,426 tons of herring, 72% of which were age-6 herring. This was a 2,000 ton reduction from the highest recorded spawning escapement of 6,472 tons observed in 1998. Based on the spawning biomass observed in 1999 and population age structure, the biomass forecast for 2000 is 2,685 tons. The downward trend in the biomass is the result of several years of low recruitment of young age-classes of herring. The Hoonah Sound herring stock continues to be largely comprised of the 1993 year class that recruited to the fishery in 1996 as three-year-olds (Table 3, Figure 2).

The threshold or minimum amount of herring spawning biomass for this fishery to occur is 1,000 tons. Based on the forecast for 2000, and a targeted harvest rate of 13.0%, the guideline harvest level (GHL) for the 2000 fishery is 359 tons of herring. Based on 12.5 tons of herring per ton of product, the harvest objective for 2000 will be 29 tons of spawn-on-kelp product.

Department biologists listed at the end of this document are available to answer questions concerning this management plan. Pound fishery participants are also encouraged to carefully review the section of this plan containing requirements of other agencies.

CALENDAR OF EVENTS

The following is a calendar of events to be considered by pound operators for the 2000-fishing season.

- | | |
|--|--|
| December 15 | - Department of Fish and Game pound permit applications were available. |
| January 31 | - Regulatory deadline for submitting an application to the Department of Fish and Game for a pound permit. |
| January 31 | - 2000 Management Plans are available and mailed to applicants. |
| No
Specific Deadline/
Recommend
March 1 | - U.S. Forest Service special-use permit applications (for use of National Forest land above mean high tide) must be submitted to obtain a special-use permit. Special-use permits are required to camp or store gear on National Forest land in conjunction with this fishery. Please contact USFS directly for applications at (907) 747-4220. |
| March 5 | - The department will issue a permit to each applicant that has met the January 31 deadline. A separate permit will be issued for single-permit closed pounds, double-permit closed pounds, and single-permit open pounds. |
| April 2 | - Kelp permits will be available at department area offices. |
| April 6 | - The fishery will open by regulation to the capture of herring to be transferred into pounds. |
| June 7 | - Pounds must be completely removed from the fishing grounds. |

REGULATIONS

Regulations pertaining to the Hoonah Sound pound fishery can be found in the 1999-2000 Commercial Herring Fishing Regulations booklet under ARTICLE 4. STATISTICAL AREA A for SOUTHEAST ALASKA under the following sections: 5 AAC 27.110. FISHING SEASONS (f), 5 AAC 27.130. GEAR (c), (d), and (e), and 5 AAC 27.185. MANAGEMENT PLAN FOR HERRING SPAWN-ON-KELP IN POUNDS. (a) through (i).

Fishers participating in the 2000 Hoonah Sound herring spawn-on-kelp fishery must review and follow these regulations. Regulation books are available at any ADF&G area office. Any new regulations adopted during the 2000 Board of Fisheries meeting in either Juneau or Sitka will not be in effect until the 2001 season.

HERRING STOCK STATUS AND GUIDELINE HARVEST LEVEL AND 2000 KELP BLADE ALLOCATION

A summary showing spawning dates, mileage of spawn, and spawning stock size is shown in Table 2. Since the department in 1971 first monitored the population, the Hoonah Sound herring spawning stock has averaged 6.2 nautical miles of spawn and 2,921 tons of spawning biomass. However since 1990, the year the spawn-on-kelp fishery started, the stock has maintained an average of 10.2 nautical miles of spawn and 3,487 tons of spawning biomass. Based on the 2000 spawning biomass forecast of 2,683 tons, the guideline harvest level (GHL) for 2000 is 359 tons (13.0% harvest rate), and the spawn-on-kelp harvest objective is 29 tons (12.5 tons of herring per ton of spawn-on-kelp product). In order to remain within this harvest objective the department will be using kelp incentives to encourage pound operators to fish multiple-permit pounds or open pounds. For the 2000 season the kelp allocation to achieve the harvest objective will be 110 blades for single-permit closed pounds, 300 blades per permit holder for double-permit closed pounds, and 600 blades for single-permit open pounds.

Herring spawning normally occurs in Hoonah Sound during the last two weeks of April. The earliest recorded spawning occurred on April 13, 1990, and the latest recorded spawning was on May 17, 1971. During the 1999 season spawning occurred from April 27 through May 1. Traditionally, spawning occurs in Hoonah Sound around Vixen and Emmons Islands and the shoreline from Fick Cove to Ushk Point. Spawning has also been observed in Peril Strait along the Chichagof Island shoreline from Finger River to Broad Island, at False Island, and along the Baranof Island shoreline from Nismeni Point to Point Benham.

LIMITED ENTRY

On January 1, 1995, the Commercial Fisheries Entry Commission adopted a regulation placing the Southeastern Alaska herring spawn-on-kelp pound fisheries in the Hoonah Sound and Craig/Klawock areas under limited entry. The maximum number of limited entry cards for the Hoonah Sound spawn-on-kelp fishery has been set at 109. Based on administration of the point system adopted in February of 1995 CFEC has now issued 83 limited entry permit cards for this fishery. Up to 30 interim-use permit cards may be issued during the 2000 season pending the outcome of hearings and administrative reviews now in progress. At most, 113 fishers would be eligible to participate in the Hoonah Sound fishery during the 2000 season.

PERMIT APPLICATION PROCEDURES

To establish eligibility for the 2000 pound fishery, an operator must submit a permit application to any Southeast Alaska Fish and Game office by **January 31, 2000**. Applications sent by mail must be postmarked no later than January 31. Applications received after this date will be subject to a **\$45 late fee**. Permit applications have been available since December 15, 1999 at Fish and Game Area Offices, and they can be obtained by writing the Alaska Department of Fish and Game, Division of Commercial Fisheries, 304 Lake Street, Room 103, Sitka, Alaska 99835-7563. Applications with original signatures are required.

Permit holders must indicate whether they will be operating a single-permit closed pound, double-permit closed pound, or a single-permit open pound on their Fish and Game permit application. On approximately **March 5**, the department will issue a permit to each eligible applicant. The permit will specify conditions that will be required of each pound operator. Different permits will be issued for those fishing single-permit closed pounds, double-permit closed pounds, or single-permit open pounds. Once a gear type is chosen the permit holder will have to operate that gear type for the remainder of the season.

PERMIT REQUIREMENTS

Permits required will be issued on March 5 to those qualified applicants who have met the January 31 application deadline. As per the management plan (5AAC 27.185) the following permit requirements are anticipated for the 2000 season and will be finalized when the permit is issued on March 5.

1. The date by which pounds must be operational:

a) Closed Pounds: There will not be a certain date when closed pounds must be operational for the 2000 season. Pounds must be operational by the time kelp and herring are introduced. Since this fishery is no longer open access and effort levels can now be anticipated, there is no longer a need for this former requirement. Individuals fishing single-permit or double-permit closed pounds must notify the department in their permit application which type of closed pound they intend to operate. The permit application is due January 31, 2000.

b) Open Pounds: Open pounds must be operational by the time kelp is introduced into the pound. Individuals fishing open pounds must first notify the department in their permit application, which is due on January 31, 2000. Open pound operators may not switch to closed pound operations.

2. The size of, identification requirements for, and method of operation of closed and open pounds:

a) Size: Both open and closed pounds are now defined in regulation (5 AAC 27.130) which limits pound size to a maximum of a 400 square-foot opening at the water surface and a maximum net depth of 30 feet. Each pound must have its own net enclosure and be capable of retaining herring when separated from other pounds.

b) Identification: Each pound (open or closed) must be identified on two sides of the pound on the outside vertical surfaces with the permittee's full name and the number which is assigned by the department on the first page of the permit. Letters and numbers must be at least six inches high and ½ inch wide, contrasting with the background, and visible at all times. Pounds shared by multiple permit holders must be marked with the names and numbers of each permit holder operating that pound. Pounds that are rafted together must be positioned so that lettering and numbering is clearly visible at all times. For the 2000 season the department is not requiring

upright signs mounted on upright posts or numbering on the top surface of the pound. All lines of kelp must be marked above the water surface with the number of kelp blades on that line, and whenever more than one permit holder shares a pound, the name of the permit holder must be marked on each line of kelp.

c) Operation: Single and multiple closed pound permit holders must be physically present in the fishing area during herring fishing operations, when kelp or herring is introduced into the pound, during release of herring, and during the harvest and sale of their spawn-on-kelp product. **Open pound permit holders** must be physically present in the fishing area during times when kelp is placed in the pound, whenever the pound with kelp suspended is moved to a new location, and during harvest and sale of spawn-on-kelp product. **Closed pound operators** may switch to open pound operations after their captured fish are released only after notifying the department representative on the grounds. All pound structures must be completely removed from the fishing grounds by **June 7, 2000**.

3. The location, and methods for taking, retainment, and release of herring and kelp to be used in a pound for the production of herring spawn-on-kelp:

a) Location: Herring may be taken in areas of Section 13-C where pounds may be operated as per 5AAC 27.185 (a) (2). This area is shown in Figure 3.

b) Method: Herring may be captured and transferred to pounds after 12:01 a.m. April 6, 2000 until closed by emergency order and field announcement. If necessary earlier capture will be allowed by emergency order and field announcement. If necessary, to reduce the size of sets and to minimize mortality, fishing may be restricted to daylight hours only by emergency order and field announcement. Purse seines and hand purse seines are the only legal gears to capture herring. Fishers can add herring to the pound multiple times, but once herring have been released from a pound or product has been harvested from a pound, no further herring fishing, kelp additions, or transfer of herring to that pound are allowed.

c) Retainment: Herring may be held in closed pounds for a maximum of six days from the first date of introduction to that pound. Transport to the pound site may be done only with a pushable net pen or a separate tow pound and not with the seine. Transfer of herring is only allowed by temporarily joining nets together and allowing the herring to swim freely into the transfer net or pound.

d) Release: All herring utilized in the pound fishery must be released and may not be retained for use as bait in any other commercial, sport, personal use, or subsistence fishery. When herring are released at least one side of the net must be lowered at least six feet below the water surface to allow herring to freely escape. After the release of herring the pound and webbing will remain in place for a minimum of four weeks to allow eggs to hatch. The department will notify permit holders through a news release when pounds may be removed from the fishing grounds.

4. The harvest reporting requirements for pound operators:

After harvest and prior to leaving the fishing grounds, fishers must first contact the department representative on the grounds and hail the approximate amount of spawn-on-kelp harvested from their pound. If product is delivered to a processor or a tender on the grounds a fish ticket must be issued at that time. If an accurate weight is not available then the weight reported on the ticket should be clearly marked as “estimated weight.” Each permit holder fishing a jointly operated

pound shall be issued a fish ticket and the sum of the weights of those tickets shall equal the total weight of product produced in the jointly operated pound. Each permit holder's spawn-on-kelp product must remain separate from other permit holder's product until after a fish ticket has been issued and product has been processed and graded. Further instructions on fish ticket requirements are specified under the "REQUIREMENTS FOR BUYERS" section of this Management Plan. **An on-the-grounds fish ticket is not required only when the permit holder is transporting their own product to a licensed buyer outside the Hoonah Sound area. Permit holders must make a landing to a licensed Alaskan processor showing the total pounds of spawn-on-kelp landed within seven days of the time spawn-on-kelp product is removed from the pound.** This new stipulation is added to provide the department with more timely fish ticket information.

5. Other guidelines determined by the commissioner in his discretion, to be necessary for the conservation and management of herring and kelp, and the public health, safety, and general welfare:

The permit must be in the possession of the pound operator at all times. Those jointly operating a closed pound are jointly responsible for all pound operations. Open pound operators will receive double the kelp allocation that closed pound operators receive.

HARVEST OF KELP

A separate permit is required to harvest kelp for use in the pounds (5 AAC 37.900). Kelp harvest permits may be obtained from local department offices. Kelp blades will be allocated equally among permit holders fishing the same type of gear type. Kelp permits may be obtained from local Fish and Game offices beginning April 2 and must be completed and returned to the department within 30 days after harvesting of kelp. **Since the department has had poor compliance with the timely return of kelp permits, violations of the kelp permit return deadline will be turned over to Fish and Wildlife Protection for citation.**

ALLOCATION OF KELP

Kelp allocations for the 2000 season are as follows: For single-permit operated closed pounds the allocation is 110 blades. For double-permit operated closed pounds the kelp allocation is 300 blades for each permit holder. For single-permit open pounds the allocation is 600 blades.

Regulation 27.185 (i) states that "a person who will jointly operate a pound with another person may be allocated additional kelp blades...." The 2000 herring GHL of 359 tons (calculated at a 13% harvest rate) is not sufficient to provide for a fishery using all single permit holder closed pounds. Accordingly, for the 2000 season, the department is using kelp allocation incentives to encourage joint operation of closed pounds and open pounds to conserve herring.

HARVEST AND PRODUCTION

Each permit holder's spawn-on-kelp blades must remain separate from other permit holder's spawn-on-kelp blades until after processing and grading is completed. Permit holders will be allowed to harvest all of the spawn-on-kelp product produced in their pounds. A permit holder's fish ticket must report only the spawn-on-kelp harvested from his/her own pound. Each permit holder fishing a jointly operated pound shall be issued a fish ticket and the **sum** of the weights of those tickets shall equal the total weight of product

produced in the jointly operated pound. All fishers and any vessel carrying unlanded and unprocessed spawn-on-kelp product from the fishing grounds must first contact the department and hail the estimated amount of spawn-on-kelp product harvested and indicate the intended time and location where a landing will occur. For any product that has been landed on the grounds to a licensed processor, the processor (not the fishers) will be required to hail the department with delivery weight for each landing on board.

FISHERY CONDUCT AND MANAGEMENT

Suitable sites for pounds in Hoonah Sound are limited. To avoid herring mortality and damage to the pounds, operators should locate their pounds in an area with minimal exposure to wind and wave action, and with a relatively deep bottom. The distance between the location where herring are captured and the pound will be anchored should be minimized since long towing distances can cause stress induced spawning, egg loss, de-scaling of herring, and mortality of herring. The area between Emmons Island and Vixen Island has been the main focus for anchoring pounds since herring normally spawn near this area.

The department will station a state vessel and personnel in Hoonah Sound when herring are available for capture. After that time department personnel will closely monitor all phases of the fishery to assure compliance with permit conditions. All fishery announcements, including updates of herring activities and fishery openings/closures, will be broadcast by VHF radio, Channel 10. Fishers are expected to have a VHF radio.

The department will be closely monitoring herring activity in Hoonah Sound by vessel and aerial surveys. Results of aerial surveys will be announced by recorded message at 907-747-5022 or by department news release if findings have a significant bearing on when fishing activity should begin. Permit holders may begin catching and transferring herring at any time after 12:01 a.m. April 6, 2000 until closed by emergency order. If it appears spawning will occur earlier than this date, the fishery may be opened earlier to avoid loss of the fishery.

The capture and transfer of herring into pounds will be monitored to document any mortality or rough handling of herring. To avoid mortality, the transport of herring to the pound site must be done with the pound itself or a pushable/towable net pen. Transporting with a purse seine will not be allowed. Pound operators are also advised to **slowly push pounds or to tow alongside** of the transfer pound to avoid prop wash and crushing herring against the net. Fishers are asked to avoid making and holding large sets intended to fill multiple pounds in order to avoid mortality and stress of herring. The department may temporarily close the fishery or limit fishing to daylight hours only, in order to minimize stress and mortality, to reduce potential set size, and to better monitor the fishery.

Although the department has determined a limitation on the number of kelp blades that can be harvested and placed in each permit holder's pound, fishers are encouraged to fish the number of blades which will maximize the overall quality and value of their product rather than simply to fish the total amount allowed by the department.

REQUIREMENTS FOR BUYERS

Operators of floating processing vessels, tender vessels, and catcher-processors will be required to report in person, by VHF radio, or by telephone, to the Department of Fish and Game office in Sitka before the start of processing operations in Hoonah Sound. These reporting requirements are specified by regulation 5 AAC 39.130 (g).

In order to improve compliance with fish ticket reporting requirements, the department is clarifying how fish ticket reporting should be handled by processors during the 2000 season. **All processors (including floating processors, tenders for shore based processors, and catcher-processors) must plan to issue fish tickets at the time product is received on the grounds, and provide copies of fish tickets to the department representatives on the grounds, or submit tickets to the department within seven days after landing.** Fish tickets must be imprinted from a valid permit card with the signature of the permit holder and must contain the following information: processor code, date of landing, total weight of product, whether the product was fresh or brined when the weight was taken, the number of spawn-on-kelp blades harvested, what gear type (i.e. single-permit closed, double-permit closed or a single-permit open pound), location of harvest (13-C), and the signature of the buyer or authorized agent of the buyer. If the weight on the ticket is an estimated weight, it should be clearly marked as “estimated weight.” Fish tickets should be sent to the Department of Fish and Game, Division of Commercial Fisheries, 304 Lake St. Room 103, Sitka, Alaska 99835-7563, or submitted to a representative of the department before leaving the fishing area.

Fishers and processors are advised that they may issue fish tickets with estimated weights to satisfy the above requirement and then, when accurate final weighing, grading, and processing has been completed, they must update the department or issue an amended ticket. If accurate weighing, grading, and processing will not be completed with seven days of the initial delivery of product on the grounds, then processors should submit copies of the fish tickets with estimated weights to the department within seven days after landing. It is required that tenders and processors keep spawn-on-kelp product from different fishers separated until accurate weighing, grading, and processing has been completed. **Processors will be required under 5 AAC 39.130 (c) (10) “other information the department may require” to provide the delivered weight and exvessel value by grade of landed spawn-on-kelp product.** This information is crucial so the department can provide the Alaska Board of Fisheries with a comprehensive outlook on the spawn-on-kelp fisheries. The department recognizes that final price settlements between fishers and processors may not occur for several months after the initial landing of product. Processors should contact the Sitka Fish and Game office when price settlements are made, and the department will then update the fish ticket with the required information.

LICENSE REQUIREMENTS

In addition to the Alaska Department of Fish and Game permits required to operate a pound and harvest kelp for transport into a pound, pound operators must also obtain a limited entry or an interim use permit (L21A) from the Commercial Fisheries Entry Commission. Individuals who do not have pound permits but are assisting in the operation of the fishery in any manner must have a crew member license. All commercial vessels (including skiffs) used in the fishery are required to be licensed with the Limited Entry Commission. Fishers are required to display the permanent vessel license plate (ADF&G number) on both sides of the hull, cabin, or mast in permanent symbols at least 12-inches high and with lines at least 1-inch wide that contrast with the background.

Applications for vessel and interim use permits are available from all offices of the Alaska Department of Fish and Game or can be obtained by writing the Commercial Fisheries Entry Commission, 8800-109 Glacier Highway, Juneau, Alaska 99801-8079. Crewmember licenses may be obtained from local vendors in most communities.

OTHER AGENCY REQUIREMENTS

Prospective pound operators are advised to consider other agency requirements for constructing and operating pounds in Hoonah Sound. Pound operators are urged to contact the Alaska Department of Natural Resources, U.S. Forest Service, the National Marine Fisheries Service, and the United States Coast Guard to determine other regulations and requirements. For your convenience phone numbers for those agencies are listed below:

Department of Natural Resources

The Alaska Department of Natural Resources (907-465-3400) manages the use of tide and submerged lands seaward of mean high water (9.1 ft.).

U.S. Forest Service

In the Hoonah Sound area, the U.S. Forest Service has jurisdiction over and manages the land above mean high tide. People who plan to use National Forest land in connection with the fishery must apply for a special use permit from the Forest Service prior to any occupancy. Special use permit applications are available at the Sitka Ranger District Office, 201 Katlian, Suite 109, Sitka, Alaska 99835, (907-747-4220). Completed applications should be submitted to the Sitka Ranger District well in advance of operations to ensure that a permit is received in time for the fishery. Examples of use needing a permit include (but not limited to): camping on National Forest in conjunction with the commercial fishery, and storage of gear on the National Forest.

National Marine Fisheries Service

The National Marine Fisheries Service (907-747-6940) regulates activities which might harm marine mammals.

United States Coast Guard

Structures such as floating fish pens are subject to the requirements of the Code of Federal Regulations, Title 33, Part 64. This regulation requires an owner to apply for a Coast Guard permit and to install and maintain a light or other private aid to navigation if the Coast Guard determines it to be necessary to protect maritime navigation. If you have questions, call the Coast Guard Aids to Navigation office, at 463-2254.

Table 1. Hoonah Sound herring spawn-on-kelp fishery summary, 1990-1999.

	1990	1991	1992	1993	1994	1995	1997	1998	1999
Herring Quota (tons)	150	150	150	150	150	150	1421	700	778
Harvest Quota (tons)	11	12	12	12	12	12	114	56	62
Harvest (tons)	11.9	13.25	23.12	14.0	32.7	27.4	65.2	85.9	71.6
Exvessel Value	\$201,348	\$193,715	\$453,152	\$542,080	\$1,683,396	\$1,175,460	\$920,000	\$1,160,523	\$1,005,529
Average Price/LB	\$8.46	\$7.31	\$9.80	\$19.36	\$25.74	\$21.45	\$7.05	\$6.75	\$7.02
Average Income	\$2,034	\$2,334	\$4,196	\$8,470	\$15,444	\$9,715	\$6,694	\$10,092	\$11,692
Number of Applicants	400	185	199	230	195	153	139	133	106
Number of Pounds	128	104	120	115	123	132	113/18 ^a	115	96
Number Selling Product	99	83	108	64	109	121	112/12 ^a	115	86
Kelp Allocation (blades)	240	280	240	160	140	100	430/860 ^a	400/800 ^a	400/800 ^a
Number of Kelp Permits	26	25	27	25	25	27	34	31	22
Kelp Blade Harvest	31,260	28,355	27,255	16,260	18,340	15,195	68,755	54,275	42,025
Harvest Limit (LB)	170	none	none	none	none	none	none	none	none
Fishery Open - Closed	4/13-4/22	4/6-4/25	4/6-4/26	4/6-5/3	4/6-4/25	4/6-4/22	4/6-4/29	4/6-4/27	4/6-5/3
Fishing Occurred	4/13-4/22	4/15-4/25	4/17-4/26	4/26-5/2	4/21-4/24	4/17-4/22	4/22-4/29	4/18-4/26	4/29-5/2
Harvest Occurred	4/18-4/27	4/22-4/29	4/22-4/30	4/25-5/2	4/25-4/27	4/22-4/26	4/27-5/3	4/25-4/27	5/3-5/5

^a Closed pound/Open Pound

Note: No fishery occurred in 1996 since the biomass forecast was below the 1,000-ton threshold.

Table 2. Hoonah Sound herring stock spawn survey, 1971-1999.

YEAR	DATES	SPAWNING NAUTICAL MILES OF SPAWN	SPAWNING STOCK BIOMASS (TONS)
1971	5/10-5/17	2.5	N/A
1972	5/11-5/12	1.5	N/A
1973	N/A	1.0	N/A
1974	5/14	3.0	N/A
1975	N/A	0	N/A
1976	5/5	1.0	N/A
1977	N/A	3.5	N/A
1978	N/A	5.3	N/A
1979	N/A	N/A	N/A
1980	N/A	N/A	N/A
1981	4/30-5/01	2.3	753
1982	4/29-5/01	1.5	N/A
1983	5/01	1.0	N/A
1984	4/26-5/01	3.0	540
1985	5/01-5/03	3.5	N/A
1986	4/28-5/01	3.8	N/A
1987	4/28-5/02	3.8	740
1988	4/30-5/01	5.0	N/A
1989	4/16-4/20	17.0	4,000
1990	4/13-4/28	10.0	2,350
1991	4/19-4/24	8.7	2,175
1992	4/22-4/24	10.8	5,714
1993	4/27-4/29	5.7	1,099
1994	4/21-4/23	9.0	2,450
1995	4/20-4/21	4.5	274
1996	5/02-5/9	10.1	4,023
1997	4/25-4/28	14.5	5,884
1998	4/23-4/27	14.5	6,472
1999	4/27-5/1	13.8	4,426
AVERAGE	1971-1999	6.2	2,921
10YR AVG	1990-1999	10.2	3,487

Table 3. Percent-at-age composition of spawning Hoonah Sound herring, 1991-1999.

Age Class	1991	1992	1993	1994	1995	1996	1997	1998	1999
3	44	7	7	3	25	83	8	2	3
4	8	55	17	10	6	13	80	13	5
5	4	6	56	35	16	1	7	77	13
6	15	4	8	42	30	1	2	7	72
7	22	14	1	5	19	2	2	1	6
8+	5	11	10	6	4	1	1	1	1
Spawning Biomass (tons)	2,175	5,714	1,099	2,450	274	4,023	5,884	6,472	4,426

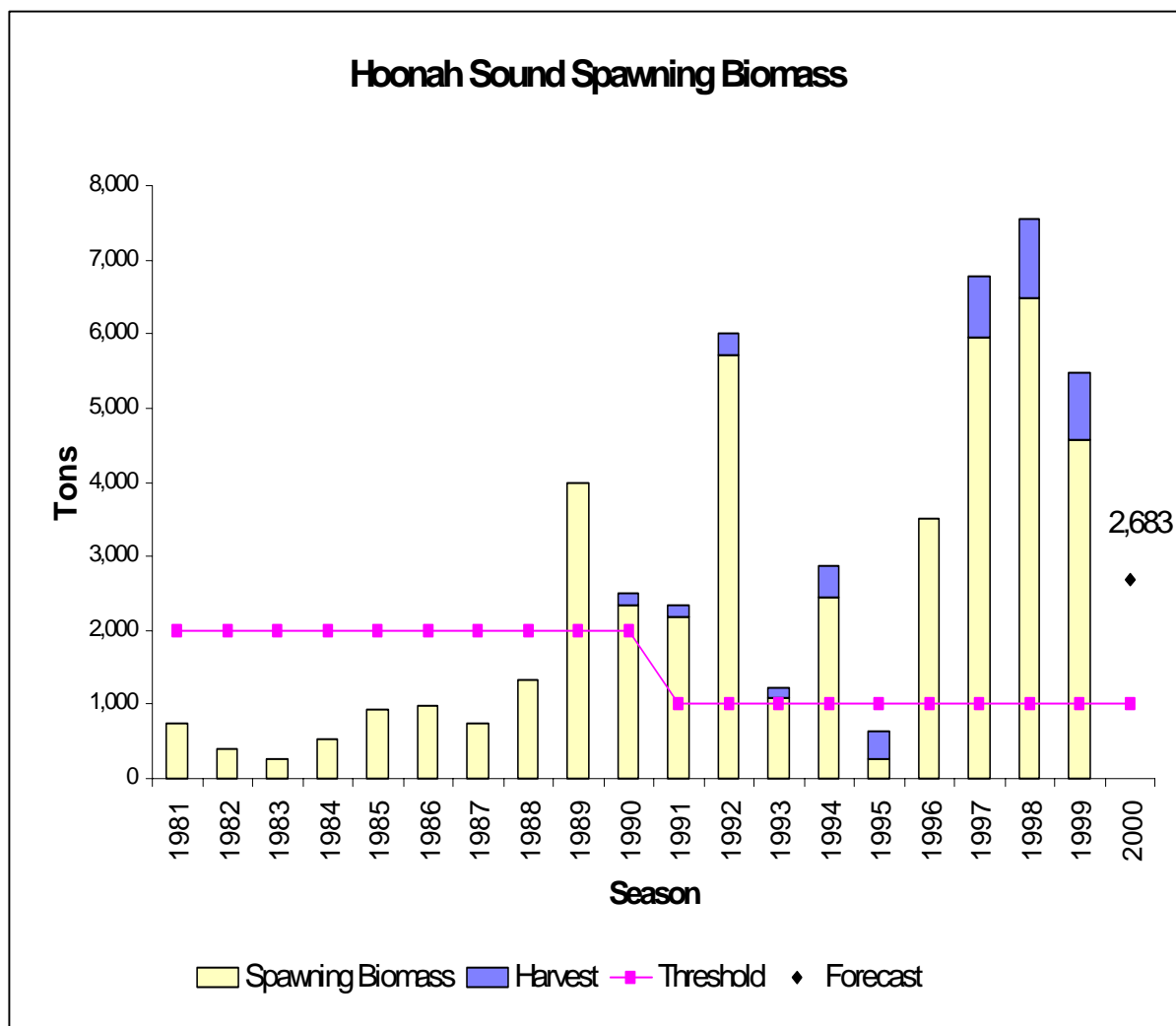


Figure 1. Hoonah Sound herring stock performance showing estimated spawning biomass and harvest (based on 1 ton of spawn-on-kelp to 12.5 tons of herring), 1981-1999, and the 2000 forecast biomass.

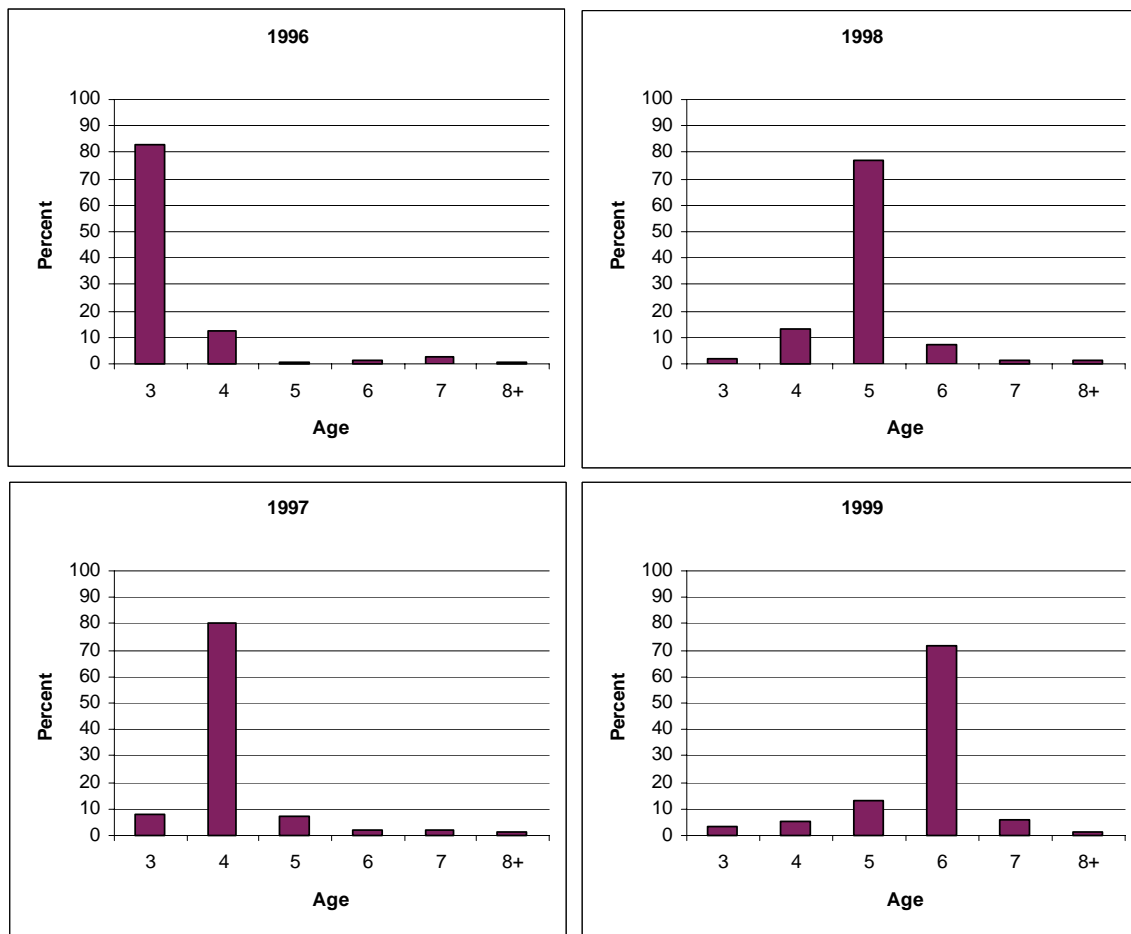
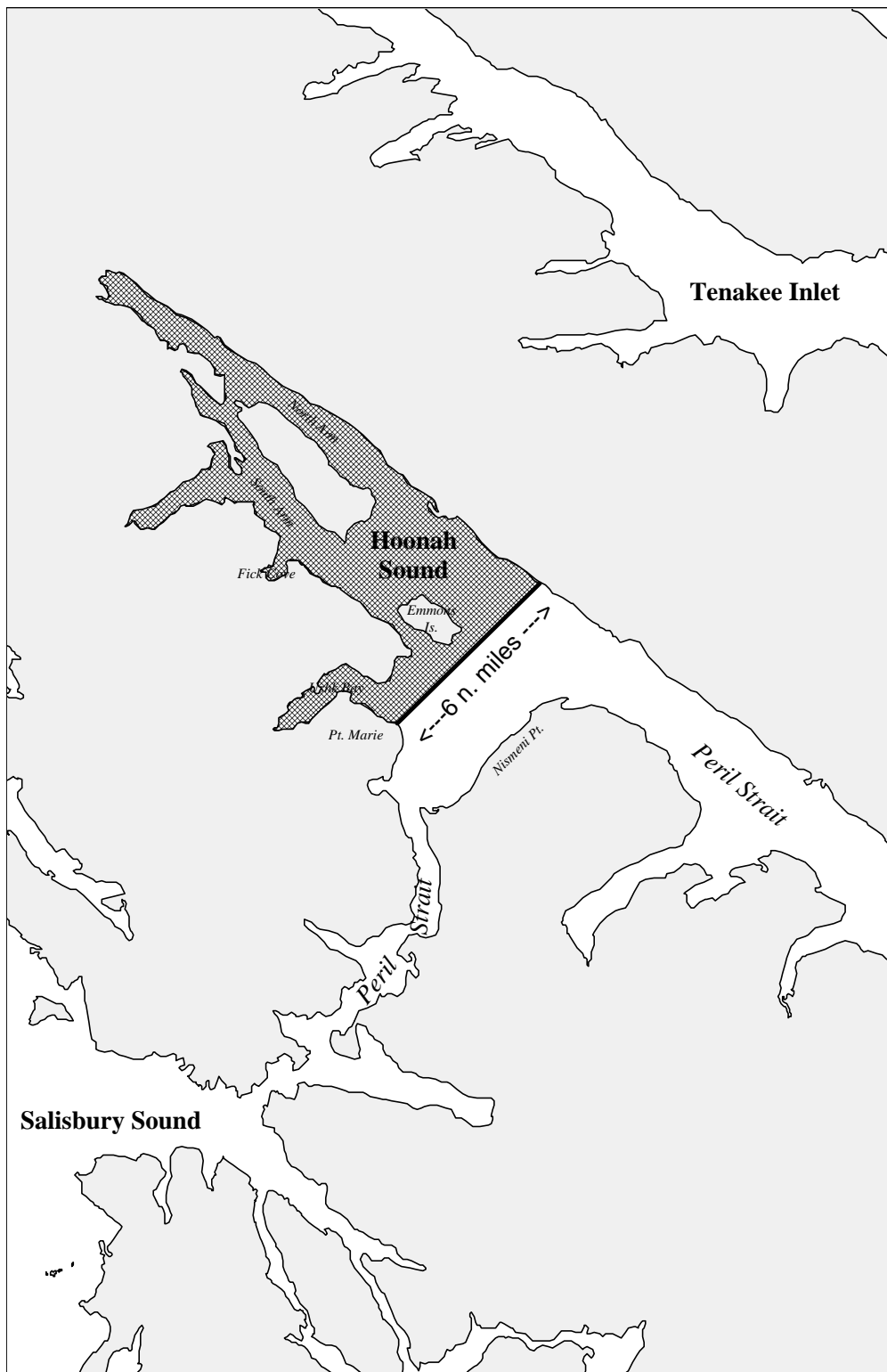


Figure 2. Percent-at-age composition of spawning Hoonah Sound herring, 1996-1999.



Hoonah Sound Herring Spawn-On-Kelp in Pounds Fishery Location

Figure 3. Spawn-on-Kelp boundary area for herring pound structures.

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